2.25

3 Mass Conservation

3.1 Law of mass conservation for a continuum, expressed in control volume form. Examples.

3.2 Mass conservation law in differential form. The physical significance of $\nabla \cdot \vec{V}$: the rate of change of material volume per unit volume.

3.3 Some special forms of the mass conservation equation for quasi-one-dimensional flow, accounting for the effects of unsteadiness, compressibility, and cross-sectional area variations. Examples.

Read: Fay, Chapt. 3

Problems: Shapiro & Sonin 3.3, 3.5, 3.7, 3.8, 4.1